

Final Report

Arizona Grain Research and Promotion Council

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Small Grains Variety Testing, 2011

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Small Grains Variety Evaluation at Arizona City, Coolidge, Maricopa and Yuma, 2011

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Summary

Small grain varieties are evaluated each year by University of Arizona personnel. The purpose of these tests is to characterize varieties in terms of yield and other attributes. Variety performance varies greatly from year to year and several site-years are necessary to adequately characterize the yield potential of a variety. A summary of small grain variety trials conducted by the University of Arizona can be found online at <http://ag.arizona.edu/pubs/crops/az1265.pdf>.

Introduction

Small grain varieties were tested as part of the on-going effort to assess variety productivity and characteristics. Barley, durum, and wheat commercial cultivars and experimental lines were tested. The purpose of these tests is to characterize varieties in terms of yield potential, relative maturity, quality, and other characteristics. Small plot variety trials do not substitute for localized on-farm testing of new varieties. Varieties are known to differ in their response to specific management regimes and weather conditions. A summary of small grain variety trials conducted by the University of Arizona is available from your local Cooperative Extension office or online at <http://ag.arizona.edu/pubs/crops/az1265.pdf>.

Procedure

Barley, durum, and wheat varieties were evaluated at the following locations: Maricopa by the University of Arizona, Coolidge by World Wide Wheat, Arizona City and Yuma by Arizona Plant Breeders, and Yuma (durum and wheat) and Pinal Co. (barley) by WestBred. The trial at Yuma conducted by WestBred consisted of a normal planting on Dec 20 and a late planting on Jan 20. At all locations, the seed was planted with a cone planter in seven rows spaced 7 inches apart and 20 ft long. The seeding rate was approximately 100 lbs/acre for durum and wheat varieties and 85 lbs/acre for barley varieties. The experimental design was a randomized complete block with 3-4 replications, and various numbers of barley, durum, and wheat entries. Growing conditions at each site are listed in Table 1. The following data was collected: grain yield, test weight, plant height, lodging, heading, physiological maturity, grain protein, and HVAC. Grain was harvested with small plot combines and yields are expressed on an "as is" moisture basis. HVAC was determined from 10 g of seed. Grain protein was determined from total N multiplied by 5.7 and expressed on a 12% moisture basis. Physiological maturity is defined as when the glumes turn brown. Abbreviations for the sources of varieties are: APB = Arizona Plant Breeders, UA = University of Arizona, WPB = Western Plant Breeders, WWW = World Wide Wheat, UC = University of California, RSI = Resource Seeds Inc.

Discussion

Yield and plant characteristics of the varieties are presented for the various locations in Tables 2-10 and a summary of the grain yields at all locations is presented in Table 11. Grain plant nutrient concentrations are presented in Tables 12-17. Several locations and years are needed to accurately assess variety performance. The results of this trial are most useful when combined with data from previous years. A summary of small grain variety trials conducted by the University of Arizona can be found online at <http://ag.arizona.edu/pubs/crops/az1265.pdf>.

Acknowledgments

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Table 1. Cultural practices for the small grains variety trials at the various locations. The durum at Yuma was planted at two dates, 2 reps normal and 2 reps late, but the data is presented as on average of these two dates. The barley trial conducted in Pinal Co. by WestBred was planted on 12/7/10.

Cultural information	Arizona City (APB)	Coolidge (WWW)	Maricopa (UA)	Yuma (WPB)	Yuma Late (WPB)
Previous crop	Cotton	Cotton	Fallow	Cotton	Cotton
Soil texture	Clay Loam	Sandy clay loam	Sandy Loam	Clay loam	Clay loam
Nominal Planting date	12/10/10	12/18/10	12/7/10	12/20/10	1/20/10
Irrigation dates (amount)	12/14 (5.78 in.)				
	1/21 (5.60 in.)	12/22 (6 in.)	12/15 (3.21 in.)		
	2/16 (4.99 in.)	1/19 (5 in.)	1/27 (3.89 in.)	12/20 (4 in.)	1/20 (4 in.)
	3/10 (4.68 in.)	2/09 (5 in.)	2/25 (3.59 in.)	1/20 (5 in.)	3/02 (5 in.)
	3/30 (5.03 in.)	3/16 (5 in.)	3/17 (3.89 in.)	3/02 (5 in.)	3/20 (5 in.)
	4/14 (4.60 in.)	4/06 (5 in.)	3/31 (2.39 in.)	3/20 (5 in.)	4/05 (5 in.)
	4/27 (5.34 in.)	4/27 (5 in.)	4/13 (5.38 in.)	4/05 (5 in.)	5/22 (5 in.)
	5/12 (4.73 in.)	5/13 (5 in.)	4/25 (4.08 in.)	4/22 (5 in.)	5/04 (5 in.)
	Total (35 in.)	Total (36 in.)	Total (26.43 in.)	Total (29 in.)	Total (29 in.)
Nitrogen dates (amount)	Pre-plant (10 T manure/a)	Pre-plant (18 lbs N/a)	12/15 (50 lbs N/a)		
	1/21 (22 lbs N/a)	as 11-15-0	as 46-0-0		
	2/16 (38 lbs N/a)			1/19: 50 (lbs N/a)	
	3/10 (44 lbs N/a)	2/09 (77 lbs N/a)	1/28 (50 lbs N/a)	3/02: 140 (lbs N/a)	3/02: 140 (lbs N/a)
	3/30 (43 lbs N/a)	3/16 (100 lbs N/a)	2/25 (50 lbs N/a)	3/20: 105 (lbs N/a)	3/20: 105 (lbs N/a)
	4/14 (42 lbs N/a)	4/06 (40 lbs N/a)	3/17 (50 lbs N/a)	4/05: 35 (lbs N/a)	4/05: 35 (lbs N/a)
	as 28-0-05	as 32-0-0	as 32-0-0	as 32-0-0	as 32-0-0
		Total (189 lbs N/a)	Total (235 lbs N/a)	Total = 200 lbs N/a	Total = 330 lbs N/a
Phosphorus (date, amount, fertilizer)	11/10 (100 lbs P ₂ O ₅ /a) 11-52-0	Pre-plant (38 lbs P ₂ O ₅ /a) 11-52-0	12/15 (50 lbs P ₂ O ₅ /a) 0-45-0	12/20 (200 lbs P ₂ O ₅ /a) 0-45-0	12/20 (200 lbs P ₂ O ₅ /a) 0-45-0
Pesticides (date)	None	Harmony (3/12)	None	Harmony (2/15)	Harmony (2/15)
Harvest date	6/10	5/27	5/26	6/6	6/6

Table 2. Barley variety yield results from **Arizona City (APB)**, 2011.

Entry	Source	Grain Yield ^a lbs/acre	Test Weight lbs/bu	Plant Height inches	Lodging %	Heading	Maturity
Commander	WWW	6267	---	26	0	3/29	5/19
Max	WWW	6646	55.0	21	0	3/31	5/20
Baretta	APB	7693	54.9	26	0	3/28	5/18
Kopious	APB	6155	53.7	17	0	3/23	5/15
Chico	WPB	6351	51.9	17	0	3/25	5/17
Cochise	WPB	5852	52.8	21	0	3/23	5/15
Gustoe	WPB	7574	55.6	26	0	3/28	5/18
Nebula	WPB	6281	53.2	26	0	3/28	5/18
BA4513	WWW	7131	55.6	25	0	3/28	5/18
BA1129B	WWW	5452	---	24	0	3/29	5/16
AZBOI4101	WWW	3162	52.0	28	0	3/18	5/11
Avg.	---	6232	53.9	24	0	3/26	5/16

^a Grain yield: LSD (5%) = 1133 lbs/acre and cv = 12.6%.

Table 3. Barley variety yield results from **Maricopa (UA)**, 2011.

Entry	Source	Grain Yield ^a lbs/acre	Test Weight lbs/bu	Plant Height inches	Lodging %	Heading	Maturity
Commander	WWW	5024	47.4	27	0	4/01	5/04
Max	WWW	4919	48.5	26	0	4/04	5/09
Baretta	APB	5139	50.0	26	0	3/27	4/29
Kopious	APB	5865	50.9	28	0	3/18	4/25
Chico	WPB	5323	47.9	23	0	3/28	5/04
Cochise	WPB	3989	49.9	26	0	3/20	4/26
Gustoe	WPB	6268	47.6	26	0	4/01	5/04
Nebula	WPB	4533	47.2	29	0	3/23	4/28
BA4513	WWW	6134	48.5	30	0	3/30	5/07
BA1129B	WWW	5279	48.8	26	0	3/24	5/05
AZBOI4101	WWW	4357	48.7	30	0	3/17	4/23
Baretta ^b	APB	5141	50.2	29	0	3/26	5/02
Avg.	---	5164	48.8	27	0	3/26	5/01

^a Grain yield: LSD (5%) = 1323 lbs/acre and cv = 17.8%.

^b Seeding rate increased by 50% for this entry.

Table 4. Barley variety yield results from **Pinal Co. (WPB)**, 2011.

Entry	Source	Grain Yield ^a	Test Weight	Plant Height
		lbs/acre	lbs/bu	inches
Commander	WWW	5803	53.1	29
Max	WWW	5833	53.3	26
Baretta	APB	6247	52.8	28
Kopious	APB	5505	53.2	28
Chico	WPB	6073	52.9	27
Cochise	WPB	4285	51.8	25
Gustoe	WPB	6077	53.0	28
Nebula	WPB	6090	52.4	30
BA4513	WWW	6585	53.4	31
BA1129B	WWW	5857	51.7	27
AZBOI4101	WWW	4454	53.1	34
Avg.	---	5783	52.0	27

^a Grain yield: LSD (5%) = 432 lbs/acre and cv = 4.5%.

Table 5. Barley variety yield results from **Coolidge (WWW)**, 2011.

Entry	Source	Grain Yield ^a	Test Weight	Plant Height	Lodging	Maturity
		lbs/acre	lbs/bu	inches	%	
Commander	WWW	4290	45.3	21	0	5/10
Max	WWW	3679	48.4	23	0	5/15
Baretta	APB	5196	49.3	24	0	5/08
Kopious	APB	4514	47.9	16	0	5/09
Chico	WPB	5018	41.5	15	0	5/20
Cochise	WPB	4298	47.5	18	0	5/11
Gustoe	WPB	5466	47.5	19	0	5/22
Nebula	WPB	4673	46.6	21	0	5/15
BA4513	WWW	5573	49.9	23	0	5/09
BA1129B	WWW	4346	44.8	21	0	5/15
AZBOI4101	WWW	2292	45.5	30	0	4/25
Avg.	---	4484	46.7	23	0	5/12

^a Grain yield: LSD (5%) = 890 lbs/acre and cv = 12.0%.

Table 6. Durum and wheat variety yield results from **Arizona City (APB)**, 2011.

Entry	Source	Grain Yield ^a lbs/acre	Test Weight lbs/bu	Plant Height inches	Lodging %	Heading	Maturity %	HVAC %	Grain Protein %
<u>Durum</u>									
Crown	WWW	6826	62.3	35	0	4/03	5/24	94	13.2
Duraking	WWW	4950	64.5	29	0	4/03	5/24	99	13.4
Platinum	WWW	7454	64.8	29	0	4/03	5/24	97	13.0
Q-Max	WWW	7096	62.7	34	0	4/05	5/26	86	12.0
D00-627	APB	6656	64.4	32	0	3/29	5/19	97	13.0
Kronos	APB	7149	63.8	29	0	3/29	5/19	99	14.6
Sky	APB	7118	62.7	30	0	3/30	5/20	100	13.7
WestmoreHP	APB	6863	63.6	32	60	3/31	5/20	99	14.9
Havasu	WPB	7149	65.2	30	0	4/03	5/21	100	14.0
Orita	WPB	5060	61.8	30	0	4/03	5/24	98	15.5
WPB-881	WPB	5844	62.6	29	0	3/31	5/21	99	15.4
Alamo	WPB	6329	63.1	31	0	4/01	5/22	100	15.0
NDPRD3D13	WWW	6642	63.2	32	0	4/04	5/25	94	13.2
UT07412	WWW	6895	63.3	30	0	3/31	5/21	98	13.7
D0061	WWW	6126	61.7	31	0	4/06	5/27	99	13.2
D8270-4	WWW	8595	64.6	25	0	4/06	5/27	97	12.7
D1-7AL	APB	8713	65.8	32	50	4/02	5/23	91	11.1
D1-2	APB	7613	64.0	31	0	4/01	5/22	98	13.3
D1-35	APB	6424	60.8	31	0	3/31	5/21	98	14.4
EXP1	APB	6447	---	31	0	4/05	5/20	---	---
EXP2	APB	6615	---	31	0	4/04	5/25	---	---
EXP3	APB	7459	---	32	0	4/04	5/25	---	---
D1-7ML	APB	5536	---	33	0	4/03	5/24	---	---
D6-467	APB	7700	---	33	0	4/01	5/22	---	---
Avg.	---	6816	63.4	31	5	4/02	5/22	97	13.7
<u>Wheat</u>									
YecoraRojo	UC	5341	65.1	26	0	3/30	5/20	98	12.6
Cavalier	WWW	5644	63.7	30	0	4/05	5/26	100	12.3
Joaquin	WPB	5383	64.8	32	0	3/29	5/19	97	13.4
14AL	APB	5619	63.6	35	0	4/06	5/27	89	11.0
46AL	APB	7030	62.9	35	0	4/04	5/25	82	11.6
ARGBR5785	WWW	5283	62.4	33	0	3/30	5/20	99	13.7
46ML	APB	6807	---	37	0	4/04	5/25	---	---
W5-50ML	APB	4867	---	25	0	4/03	5/24	---	---
Avg.	---	5717	63.8	32	0	4/02	5/23	94	12.4

^a Grain yield: LSD (5%) = 1490 lbs/acre and cv = 15.4% for durum and LSD (5%) = 2318 lbs/acre and cv = 26.9% for wheat.

Table 7. Durum and wheat variety yield results from Yuma (APB), 2011.

Entry	Source	Grain Yield ^a lbs/acre	Test Weight lbs/bu	Heading	Maturity %	HVAC %	Grain Protein %
<u>Durum</u>							
Crown	WWW	7156	---	3/20	5/13	100	13.8
Duraking	WWW	9252	62.9	3/19	5/12	99	12.2
Platinum	WWW	8205	61.6	3/20	5/13	99	13.2
Q-Max	WWW	7919	58.9	3/21	5/14	97	12.5
D00-627	APB	8687	63.1	3/18	5/11	95	12.3
Kronos	APB	9382	62.8	3/18	5/11	92	11.7
Sky	APB	6920	60.1	3/19	5/12	100	12.9
WestmoreHP	APB	8526	61.8	3/19	5/12	100	13.5
Havasu	WPB	8899	---	3/19	5/12	100	14.0
Orita	WPB	8815	62.4	3/19	5/12	100	14.3
WPB-881	WPB	8272	---	3/19	5/12	100	14.0
Alamo	WPB	8681	62.3	3/19	5/12	100	13.0
NDPRD3D13	WWW	7800	61.7	3/25	5/18	96	12.6
UT07412	WWW	9660	62.2	3/19	5/12	93	12.2
D0061	WWW	6319	59.4	3/25	5/18	99	12.8
D8270-4	WWW	8518	62.9	3/22	5/15	97	13.1
D1-7AL	APB	9052	---	3/21	5/14	98	12.6
D1-2	APB	5429	61.1	3/21	5/14	100	14.3
D1-35	APB	6946	---	3/19	5/12	100	14.1
EXP1	APB	7998	---	3/20	5/13	---	---
EXP2	APB	8611	---	3/20	5/14	---	---
EXP3	APB	8982	---	3/25	5/18	---	---
D1-7ML	APB	8830	---	3/20	5/13	---	---
D6-467	APB	8262	---	3/19	5/12	---	---
Avg.	---	8128	61.7	3/20	5/13	98	13.1
<u>Wheat</u>							
YecoraRojo	UC	8355	62.9	3/16	5/09	99	14.6
Cavalier	WWW	8014	---	3/19	5/12	99	13.4
Joaquin	WPB	9367	63.5	3/19	5/12	100	14.7
14AL	APB	7728	58.7	3/18	5/11	99	14.3
46AL	APB	8146	60.1	3/21	5/14	97	14.0
ARGBR5785	WWW	6770	57.8	3/19	5/12	100	14.6
46ML	APB	8729	---	3/22	5/15	---	---
W5-50ML	APB	7672	---	3/22	5/15	---	---
Avg.	---	8063	60.6	3/19	5/12	99	14.2

^a Grain yield: LSD (5%) = 1609 lbs/acre and cv = 14.0% for durum and LSD (5%) = 962 lbs/acre and cv = 7.9% for wheat.

Table 8. Durum and wheat variety yield results from **Maricopa (UA)**, 2011.

Entry	Source	Grain Yield ^a lbs/acre	Test Weight lbs/bu	Plant Height inches	Lodging %	Heading	Maturity %	HVAC %	Grain Protein %
<u>Durum</u>									
Crown	WWW	6354	60.9	38	0	4/03	5/10	99	13.6
Duraking	WWW	7617	63.6	34	0	3/31	5/08	100	13.4
Platinum	WWW	6032	63.4	32	0	3/29	5/05	99	13.4
Q-Max	WWW	5991	62.0	37	0	4/01	5/08	100	13.7
D00-627	APB	6847	63.5	35	0	3/26	5/05	98	13.0
Kronos	APB	6581	63.5	36	0	3/26	5/05	96	13.8
Sky	APB	6657	61.7	31	0	3/26	5/08	100	13.8
WestmoreHP	APB	6596	63.2	34	0	3/27	5/04	99	15.0
Havasu	WPB	6460	64.7	36	0	3/26	5/06	100	14.0
Orita	WPB	6790	62.3	33	0	4/01	5/07	99	14.1
WPB-881	WPB	6545	62.5	36	0	3/27	5/07	98	14.3
Ocotillo	APB	6505	64.3	36	0	3/30	5/06	100	14.5
NDPRD3D13	WWW	6529	62.3	34	0	4/04	5/09	97	12.9
UT07412	WWW	6529	62.6	34	0	3/26	5/08	90	13.1
D0061	WWW	4531	58.9	34	0	4/09	5/20	99	12.4
D8270-4	WWW	5555	63.0	33	0	4/04	5/11	99	13.4
D1-7AL	APB	8222	63.8	36	0	4/03	5/09	95	14.1
D1-2	APB	6407	62.5	33	0	4/03	5/07	95	13.0
D1-35	APB	6536	62.3	33	0	3/27	5/04	100	13.1
Maestrале	Allstar	5592	64.5	37	0	3/30	5/04	100	12.3
Normanno	Allstar	3656	61.6	34	0	4/09	5/20	99	13.3
Saragolla	Allstar	6670	64.6	34	0	4/01	5/06	79	15.2
RSI59	RSI	6460	63.1	34	0	4/04	5/14	99	13.3
Westmore	APB	6337	63.4	35	0	3/26	5/05	100	15.2
Avg.	---	6333	62.8	34	0	3/31	5/08	98	13.7
<u>Wheat</u>									
YecoraRojo	UC	5143	63.9	29	0	3/27	5/04	100	14.0
Cavalier	WWW	5118	63.3	32	0	4/04	5/07	99	13.1
Joaquin	WPB	5180	64.4	35	0	3/26	5/04	100	14.6
14AL	APB	5764	61.4	39	0	4/03	5/05	99	13.6
46AL	APB	5126	61.6	39	0	4/01	5/08	99	13.4
ARGBR5785	WWW	4739	61.5	40	0	3/26	5/04	100	13.9
BlancaGrande	RSI	5581	65.6	37	0	3/27	5/05	100	13.7
CalRojo	RSI	4976	63.1	29	0	3/29	5/05	100	13.9
Redwing	RSI	5100	60.7	29	0	4/02	5/05	99	13.8
05W90192	RSI	4631	63.8	31	0	4/04	5/05	100	15.1
Camelot	RSI	4840	54.9	38	0	3/29	5/05	99	12.9
YecoraRojo ^b	UC	5614	63.4	30	0	3/28	5/04	99	13.7
Avg.	---	5151	62.3	34	0	3/30	5/05	99	13.8

^a Grain yield: LSD (5%) = 839 lbs/acre and cv = 9.4% for durum and LSD (5%) = 695 lbs/acre and cv = 9.4% for wheat.

^b Seeding rate increased by 50% for this entry.

Table 9. Durum and wheat variety yield results from **Yuma (WPB)**, 2011.

Entry	Source	Grain Yield ^a lbs/acre	Test Weight lbs/bu	Plant Height inches	Heading	HVAC %	Grain Protein %
				<u>Durum</u>			
Crown	WWW	7439	60.5	39	4/06	100	14.4
Duraking	WWW	7104	63.0	33	4/05	99	13.5
Platinum	WWW	6145	62.4	30	4/06	100	13.3
Q-Max	WWW	7107	61.7	36	4/06	99	12.8
D00-627	APB	7298	63.5	33	3/31	100	14.1
Kronos	APB	7817	62.7	33	3/31	100	13.6
Sky	APB	6175	61.0	31	4/02	99	13.4
WestmoreHP	APB	5825	61.2	32	4/01	100	14.8
Havasu	WPB	6354	63.8	34	4/02	100	13.7
Orita	WPB	7111	61.7	34	4/05	99	14.5
WPB-881	WPB	6516	62.7	35	4/01	100	14.7
NDPRD3D13	WWW	6247	62.4	34	4/06	99	12.8
UT07412	WWW	7603	63.1	33	3/31	98	14.9
D0061	WWW	5574	60.9	35	4/09	99	13.2
D8270-4	WWW	7441	64.0	34	4/07	99	12.9
D1-7AL	APB	7327	64.1	35	4/03	99	12.3
D1-2	APB	7078	61.6	32	4/05	99	14.6
D1-35	APB	6295	59.4	33	4/03	100	14.6
Maestrале	Allstar	7604	64.0	35	4/03	99	13.9
Normanno	Allstar	7481	63.8	34	4/08	97	13.1
Saragolla	Allstar	8482	65.2	32	4/02	96	12.8
Avg.	---	7139	62.6	34	4/04	99	13.7
				<u>Wheat</u>			
YecoraRojo	UC	5852	61.8	31	4/02	100	13.9
Cavalier	WWW	6963	62.9	38	4/06	100	13.9
Joaquin	WPB	7444	63.4	35	4/01	99	14.1
14AL	APB	6211	62.2	40	4/08	99	14.3
46AL	APB	6228	61.6	38	4/06	97	13.3
ARGBR5785	WWW	5240	59.4	37	4/02	100	13.6
Avg.	---	6323	61.9	36	4/04	99	13.8

^a Grain yield: LSD (5%) = 1162 lbs/acre and cv = 11.8% for durum and wheat, which were grown in the same experiment.

Table 10. Durum variety yield results from **Coolidge (WWW)**, 2011.

Entry	Source	Grain Yield ^a lbs/acre	Test Weight lbs/bu	Plant Height inches	Lodging %	Maturity %	HVAC %	Grain Protein %
<u>Durum</u>								
Crown	WWW	4840	63.0	30	0	5/15	99	13.2
Duraking	WWW	4613	64.8	28	0	5/13	99	14.9
Platinum	WWW	4003	63.8	26	0	5/14	100	14.2
Q-Max	WWW	4760	62.6	32	0	5/10	98	14.2
D00-627	APB	4022	63.6	29	0	5/07	99	14.0
Kronos	APB	4708	63.9	30	0	5/09	99	14.3
Sky	APB	4520	62.7	24	0	5/13	100	13.4
WestmoreHP	APB	4224	63.4	30	0	5/06	100	15.7
Havasu	WPB	3737	63.6	27	0	5/04	100	15.1
Orita	WPB	4076	61.9	30	0	5/21	99	16.2
WPB-881	WPB	3435	62.6	31	0	5/25	100	14.2
NDPRD3D13	WWW	2766	63.4	26	0	5/15	99	14.4
UT07412	WWW	3141	62.8	24	0	5/06	99	14.1
D0061	WWW	3935	62.1	24	0	5/15	96	11.9
D8270-4	WWW	4083	64.5	28	0	5/14	100	14.7
D1-7AL	APB	5255	65.8	29	0	5/10	98	12.4
D1-2	APB	3881	62.8	26	0	5/05	100	14.4
D1-35	APB	4110	61.8	35	0	5/14	99	13.4
Avg.	---	4092	63.3	28	0	5/13	99	14.2
<u>Wheat</u>								
YecoraRojo	UC	2469	61.6	24	0	5/08	99	17.2
Cavalier	WWW	3577	62.9	27	0	5/12	100	13.6
Joaquin	WPB	3623	63.7	29	0	5/06	100	16.7
14AL	APB	4430	62.7	34	0	5/15	100	16.2
46AL	APB	3814	62.3	31	0	5/11	100	11.7
ARGBR5785	WWW	3241	61.3	31	0	5/06	98	14.7
Avg.	---	3595	62.4	30	0	5/10	99	15.0

^a Grain yield: LSD (5%) = 805 lbs/acre and cv = 12.0% for durum and LSD (5%) = 592 lbs/acre and cv = 9.5% for wheat.

Table 11. Summary of barley, durum, and wheat variety yield results for 2011 from five locations.

Entry	Source	Grain yield (% of location average)					Mean	Standard Deviation
		Arizona City (APB)	Yuma (APB)	Maricopa (UA)	Pinal Co. (barley) or Yuma (WPB)	Coolidge (WWW)		
<u>Barley</u>								
Commander	WWW	101	---	97	100	96	98	2
Max	WWW	107	---	95	101	82	96	11
Baretta	APB	123	---	100	108	116	112	10
Kopious	APB	99	---	114	95	101	102	8
Chico	WPB	102	---	103	105	112	105	4
Cochise	WPB	94	---	77	74	96	85	11
Gustoe	WPB	122	---	121	105	122	117	8
Nebula	WPB	101	---	88	105	104	100	8
BA4513	WWW	114	---	119	114	124	118	5
BA1129B	WWW	88	---	102	101	97	97	7
AZBOI4101	WWW	51	---	84	77	51	66	17
<u>Durum</u>								
Crown	WWW	100	88	100	104	118	103	12
Duraking	WWW	73	114	120	100	113	112	9
Platinum	WWW	109	101	95	86	98	95	6
Q-Max	WWW	104	97	95	100	116	102	10
D00-627	APB	98	107	108	102	98	104	5
Kronos	APB	105	115	104	110	115	111	5
Sky	APB	104	85	105	87	111	97	13
WestmoreHP	APB	101	105	104	82	103	98	11
Havasu	WPB	105	110	102	89	91	98	10
Orita	WPB	74	108	107	100	100	104	5
WPB-881	WPB	86	102	103	91	84	95	9
NDPRD3D13	WWW	97	96	103	88	68	89	15
UT07412	WWW	101	119	103	107	77	101	18
D0061	WWW	90	78	72	78	96	81	11
D8270-4	WWW	126	105	88	104	100	99	8
D1-7AL	APB	128	111	130	103	128	118	13
D1-2	APB	112	67	101	99	95	90	16
D1-35	APB	94	85	103	88	100	94	9
Maestrале	Allstar	---	---	88	107	---	97	13
Normanno	Allstar	---	---	58	105	---	81	33
Saragolla	Allstar	---	---	105	119	---	112	10
<u>Wheat</u>								
YecoraRojo	UC	93	104	100	93	69	91	16
Cavalier	WWW	99	99	99	110	100	102	5
Joaquin	WPB	94	116	101	118	101	109	9
14AL	APB	98	96	112	98	123	107	13
46AL	APB	123	101	100	99	106	101	3
ARGBR5785	WWW	92	84	92	83	90	87	4

Table 12. Grain plant nutrient concentration from **Arizona City (APB)**, 2011.

Entry	Source	N	P	Mg	K	Ca	S	B	Fe	Mn	Cu	Zn	Al
		%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm
<u>Durum</u>													
Crown	WWW	2.43	0.302	0.115	0.43	0.04	0.147	0.8	28.3	51.0	7.7	44.4	7.6
Duraking	WWW	2.46	0.318	0.115	0.44	0.04	0.141	0.7	25.6	40.6	6.6	45.9	7.2
Platinum	WWW	2.39	0.310	0.111	0.48	0.04	0.143	0.7	26.7	49.0	6.6	45.8	10.1
Q-Max	WWW	2.21	0.337	0.116	0.45	0.04	0.134	0.7	27.5	54.0	7.0	41.5	7.9
D00-627	APB	2.39	0.322	0.117	0.40	0.04	0.136	0.8	23.8	54.2	5.9	45.6	8.7
Kronos	APB	2.68	0.307	0.112	0.43	0.04	0.154	0.8	26.6	49.0	7.7	46.5	9.0
Sky	APB	2.51	0.319	0.114	0.44	0.04	0.151	0.7	25.6	45.9	7.2	49.7	9.6
WestmoreHP	APB	2.73	0.325	0.118	0.39	0.04	0.163	1.0	29.0	51.7	6.1	46.7	10.7
Havasu	WPB	2.56	0.349	0.121	0.46	0.04	0.152	0.8	26.5	54.3	6.9	45.4	12.5
Orita	WPB	2.84	0.355	0.121	0.43	0.04	0.163	0.8	28.9	52.7	8.3	55.9	9.3
WPB-881	WPB	2.83	0.373	0.128	0.44	0.04	0.165	0.8	32.3	58.8	9.0	59.9	10.0
Alamo	WPB	2.75	0.335	0.116	0.42	0.04	0.164	0.8	27.6	50.0	8.2	49.7	10.0
NDPRD3D13	WWW	2.42	0.294	0.112	0.40	0.05	0.145	1.3	24.8	41.0	7.8	43.0	10.8
UT07412	WWW	2.52	0.327	0.118	0.45	0.04	0.147	0.8	29.1	51.5	7.2	47.7	9.9
D0061	WWW	2.43	0.336	0.120	0.48	0.05	0.169	0.9	25.3	43.2	6.8	41.4	10.2
D8270-4	WWW	2.33	0.325	0.123	0.47	0.05	0.151	1.0	30.8	52.1	6.8	46.4	9.0
D1-7AL	APB	2.04	0.287	0.108	0.41	0.04	0.127	0.9	23.4	36.6	5.8	41.0	11.7
D1-2	APB	2.44	0.323	0.116	0.44	0.04	0.153	0.7	25.3	46.9	7.0	47.7	9.1
D1-35	APB	2.65	0.323	0.107	0.50	0.04	0.150	0.9	24.2	46.5	6.5	44.5	10.1
Avg.	---	2.51	0.325	0.116	0.44	0.04	0.150	0.8	26.9	48.9	7.1	46.8	9.7
<u>Wheat</u>													
YecoraRojo	UC	2.32	0.354	0.120	0.39	0.04	0.142	0.8	28.1	58.7	5.4	48.4	12.4
Cavalier	WWW	2.25	0.327	0.122	0.38	0.04	0.143	1.1	28.7	57.7	5.5	49.7	12.2
Joaquin	WPB	2.45	0.355	0.138	0.37	0.03	0.142	0.8	28.6	63.7	5.5	48.8	9.8
14AL	APB	2.01	0.306	0.127	0.45	0.03	0.131	0.9	26.6	56.7	5.3	42.5	13.3
46AL	APB	2.12	0.341	0.131	0.41	0.04	0.141	1.0	25.3	54.6	5.1	43.4	7.1
ARGBR5785	WWW	2.51	0.331	0.126	0.39	0.04	0.159	0.9	28.7	55.1	6.4	49.9	7.1
Avg.	---	2.28	0.336	0.127	0.40	0.04	0.143	0.9	27.7	57.8	5.5	47.1	10.3

Table 13. Grain plant nutrient concentration from **Yuma (APB)**, 2011.

Entry	Source	N	P	Mg	K	Ca	S	B	Fe	Mn	Cu	Zn	Al
		%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm
<u>Durum</u>													
Crown	WWW	2.53	0.428	0.130	0.62	0.05	0.161	1.0	36.1	43.7	6.3	48.3	7.2
Duraking	WWW	2.24	0.385	0.111	0.56	0.05	0.140	0.8	29.4	29.8	4.9	39.7	6.3
Platinum	WWW	2.43	0.384	0.111	0.59	0.05	0.144	0.7	29.1	40.2	5.3	44.1	8.5
Q-Max	WWW	2.29	0.377	0.115	0.55	0.04	0.140	0.9	31.0	43.3	5.5	42.8	6.6
D00-627	APB	2.26	0.388	0.114	0.49	0.05	0.141	0.8	28.8	41.4	4.7	45.4	8.1
Kronos	APB	2.15	0.337	0.108	0.54	0.05	0.135	0.7	27.7	33.2	5.2	41.5	8.4
Sky	APB	2.36	0.403	0.114	0.56	0.05	0.148	0.8	27.7	35.5	5.0	48.5	7.2
WestmoreHP	APB	2.48	0.394	0.110	0.50	0.05	0.150	0.8	29.8	34.5	4.5	40.1	6.7
Havasu	WPB	2.57	0.386	0.115	0.49	0.05	0.148	0.8	33.3	40.8	5.3	44.3	7.6
Orita	WPB	2.63	0.397	0.116	0.57	0.05	0.156	0.8	31.5	41.0	5.5	42.4	6.5
WPB-881	WPB	2.56	0.391	0.117	0.51	0.05	0.154	0.7	36.7	44.9	5.9	53.6	7.0
Alamo	WPB	2.38	0.408	0.115	0.55	0.05	0.157	0.9	33.2	46.1	5.8	46.6	8.2
NDPRD3D13	WWW	2.31	0.374	0.116	0.55	0.06	0.150	1.0	32.4	37.5	5.8	42.1	6.9
UT07412	WWW	2.23	0.399	0.108	0.55	0.05	0.139	0.6	31.4	37.9	5.0	43.6	6.2
D0061	WWW	2.35	0.416	0.122	0.57	0.05	0.158	0.9	30.7	42.7	6.2	44.2	6.0
D8270-4	WWW	2.41	0.422	0.123	0.58	0.05	0.157	0.8	33.6	41.5	5.8	43.9	5.3
D1-7AL	APB	2.31	0.346	0.101	0.53	0.04	0.132	0.7	30.2	30.8	4.6	34.5	8.0
D1-2	APB	2.63	0.442	0.131	0.59	0.04	0.165	0.9	38.5	48.4	6.0	49.6	6.3
D1-35	APB	2.59	0.388	0.105	0.58	0.05	0.148	0.7	29.2	40.4	5.4	42.2	5.0
Avg.	---	2.41	0.393	0.115	0.55	0.05	0.149	0.8	31.6	39.7	5.4	44.1	6.9
<u>Wheat</u>													
YecoraRojo	UC	2.67	0.392	0.128	0.49	0.05	0.161	0.7	35.6	46.7	5.1	43.0	6.7
Cavalier	WWW	2.45	0.384	0.136	0.46	0.05	0.159	1.0	37.5	48.3	5.8	45.5	7.9
Joaquin	WPB	2.69	0.366	0.138	0.45	0.05	0.159	0.9	32.4	46.8	5.0	41.2	5.7
14AL	APB	2.62	0.361	0.132	0.53	0.05	0.170	0.8	40.4	47.3	5.3	39.4	8.4
46AL	APB	2.56	0.341	0.131	0.46	0.05	0.168	1.1	35.6	40.3	5.4	40.9	6.7
ARGBR5785	WWW	2.68	0.392	0.136	0.53	0.06	0.166	0.9	38.2	49.6	6.0	41.9	5.6
Avg.	---	2.61	0.373	0.134	0.49	0.05	0.164	0.9	36.6	46.5	5.4	42.0	6.8

Table 14. Grain plant nutrient concentration from **Yuma, normal planting time (WPB), 2011.**

Entry	Source	N	P	Mg	K	Ca	S	B	Fe	Mn	Cu	Zn	Al
		%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm
<u>Durum</u>													
Crown	WWW	2.86	0.286	0.097	0.46	0.04	0.146	0.8	26.1	25.3	4.9	27.6	3.8
Duraking	WWW	2.60	0.275	0.095	0.46	0.05	0.138	0.8	23.0	17.0	3.9	24.2	5.5
Platinum	WWW	2.47	0.310	0.096	0.52	0.04	0.135	0.7	24.9	24.4	4.3	26.9	4.8
Q-Max	WWW	2.43	0.268	0.102	0.47	0.04	0.144	0.8	29.2	28.2	5.2	30.5	4.7
D00-627	APB	2.57	0.336	0.117	0.50	0.05	0.148	0.8	27.5	33.0	4.3	34.9	7.1
Kronos	APB	2.50	0.327	0.109	0.52	0.05	0.158	0.8	26.5	25.0	5.2	28.8	4.5
Sky	APB	2.37	0.337	0.110	0.52	0.05	0.143	0.9	23.7	25.3	4.7	34.3	4.4
WestmoreHP	APB	2.69	0.319	0.110	0.51	0.06	0.155	1.0	50.5	27.0	4.5	28.9	49.3
Havasu	WPB	2.51	0.349	0.117	0.50	0.05	0.148	0.8	30.2	30.0	4.7	33.6	9.0
Orita	WPB	2.71	0.314	0.107	0.48	0.05	0.158	0.9	28.2	26.0	4.8	31.6	6.0
WPB-881	WPB	2.68	0.353	0.115	0.47	0.05	0.163	0.8	32.0	33.5	5.2	38.0	6.8
NDPRD3D13	WWW	2.44	0.317	0.104	0.48	0.05	0.148	1.1	28.7	25.5	4.7	28.4	6.5
UT07412	WWW	2.68	0.336	0.103	0.48	0.05	0.138	0.7	30.7	26.3	4.3	32.2	6.4
D0061	WWW	2.45	0.331	0.109	0.50	0.06	0.155	0.9	25.9	21.2	5.0	28.3	5.3
D8270-4	WWW	2.51	0.331	0.116	0.49	0.05	0.148	1.0	28.9	24.3	5.0	31.1	5.4
D1-7AL	APB	2.26	0.286	0.090	0.43	0.04	0.135	0.8	26.6	22.2	4.0	25.1	5.8
D1-2	APB	2.72	0.361	0.108	0.48	0.05	0.166	0.8	27.0	25.6	5.0	32.9	7.2
D1-35	APB	2.79	0.364	0.102	0.54	0.05	0.154	0.8	26.7	30.2	4.6	32.9	6.7
Maestrале	Allstar	2.57	0.328	0.101	0.48	0.05	0.151	0.8	29.2	30.5	4.2	29.4	7.2
Normanno	Allstar	2.41	0.268	0.080	0.41	0.04	0.146	0.6	25.7	18.4	4.0	24.9	6.3
Saragolla	Allstar	2.34	0.313	0.093	0.46	0.05	0.134	0.9	24.5	22.4	3.9	27.8	5.0
YU802-4	WPB	2.56	0.331	0.102	0.52	0.05	0.147	0.9	26.8	24.1	4.6	29.6	4.3
YU805-17	WPB	2.61	0.318	0.099	0.41	0.05	0.145	0.7	28.2	28.9	4.6	30.7	4.3
YU806-93	WPB	2.60	0.352	0.117	0.47	0.05	0.149	0.9	29.5	33.1	4.8	32.9	5.4
Avg.	---	2.56	0.321	0.104	0.48	0.05	0.148	0.8	28.3	26.1	4.6	30.2	7.6
<u>Wheat</u>													
YecoraRojo	UC	2.67	0.351	0.122	0.48	0.05	0.149	1.6	29.9	34.8	4.5	26.5	12.0
Cavalier	WWW	2.64	0.329	0.118	0.39	0.05	0.146	1.2	33.6	38.2	4.3	30.3	8.6
Joaquin	WPB	2.56	0.324	0.134	0.44	0.05	0.142	1.0	27.1	34.1	4.4	25.7	6.7
14AL	APB	2.46	0.296	0.114	0.44	0.04	0.145	1.0	33.5	31.2	4.0	27.0	7.3
46AL	APB	2.59	0.315	0.127	0.44	0.05	0.165	1.2	33.7	29.9	4.9	28.8	5.7
ARGBR5785	WWW	2.67	0.328	0.121	0.47	0.05	0.156	1.2	32.9	32.6	4.8	28.8	6.0
Avg.	---	2.60	0.324	0.123	0.44	0.05	0.151	1.2	31.8	33.5	4.5	27.9	7.7

Table 15. Grain plant nutrient concentration from **Yuma, late planting (WPB)**, 2011.

Entry	Source	N	P	Mg	K	Ca	S	B	Fe	Mn	Cu	Zn	Al
		%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm
<u>Durum</u>													
Crown	WWW	2.34	0.279	0.097	0.45	0.05	0.133	0.8	25.4	12.9	4.1	29.4	6.4
Duraking	WWW	2.41	0.309	0.102	0.54	0.05	0.138	0.8	30.4	21.9	4.7	33.5	6.3
Platinum	WWW	2.28	0.298	0.113	0.46	0.05	0.142	0.8	29.7	22.7	6.0	34.9	8.3
Q-Max	WWW	2.62	0.326	0.113	0.44	0.05	0.161	0.7	29.4	24.6	4.6	39.0	6.4
D00-627	APB	2.50	0.331	0.113	0.49	0.05	0.153	0.7	28.5	20.8	5.2	36.8	6.6
Kronos	APB	2.54	0.322	0.105	0.48	0.05	0.150	0.8	26.5	18.2	4.8	39.4	6.9
Sky	APB	2.75	0.269	0.098	0.39	0.05	0.155	0.7	27.0	15.5	4.5	29.9	7.2
WestmoreHP	APB	2.52	0.293	0.101	0.42	0.05	0.148	0.7	23.9	21.1	4.4	33.2	7.4
Havasu	WPB	2.62	0.319	0.108	0.48	0.05	0.156	0.9	29.6	18.9	5.0	32.6	6.8
Orita	WPB	2.71	0.319	0.098	0.40	0.04	0.160	0.6	32.2	24.4	5.0	41.9	5.6
WPB-881	WPB	2.25	0.249	0.091	0.38	0.04	0.131	1.0	24.3	16.1	4.3	25.7	4.8
NDPRD3D13	WWW	2.79	0.304	0.102	0.43	0.05	0.151	0.8	27.8	18.2	4.7	32.2	5.0
UT07412	WWW	2.38	0.269	0.095	0.39	0.05	0.139	0.7	25.8	17.0	4.6	30.1	5.6
D0061	WWW	2.23	0.314	0.118	0.48	0.05	0.149	0.9	30.0	20.7	5.0	33.5	7.7
D8270-4	WWW	2.27	0.239	0.088	0.36	0.04	0.122	0.6	24.7	16.8	3.8	28.1	4.9
D1-7AL	APB	2.62	0.318	0.106	0.47	0.05	0.161	0.9	33.4	22.2	5.0	34.2	11.0
D1-2	APB	2.58	0.293	0.093	0.52	0.04	0.137	0.7	26.7	23.0	4.8	32.8	8.0
D1-35	APB	2.52	0.277	0.100	0.44	0.05	0.141	0.8	29.9	21.3	4.3	30.3	14.1
Maestrале	Allstar	2.39	0.311	0.104	0.50	0.04	0.150	0.8	32.5	21.6	5.2	36.5	8.9
Normanno	Allstar	2.35	0.306	0.101	0.45	0.05	0.138	0.9	30.6	20.4	4.6	35.3	11.2
Saragolla	Allstar	2.53	0.314	0.106	0.53	0.05	0.147	0.9	29.7	21.8	5.0	35.5	8.5
YU802-4	WPB	2.50	0.273	0.100	0.43	0.05	0.153	0.9	29.5	23.3	5.1	40.5	6.8
YU805-17	WPB	2.56	0.334	0.117	0.44	0.05	0.149	0.8	30.4	24.2	5.2	42.1	7.5
YU806-93	WPB	2.34	0.279	0.097	0.45	0.05	0.133	0.8	25.4	12.9	4.1	29.4	6.4
Avg.	---	2.49	0.298	0.103	0.45	0.05	0.146	0.8	28.7	20.4	4.8	34.2	7.4
<u>Wheat</u>													
YecoraRojo	UC	2.58	0.281	0.105	0.40	0.04	0.144	0.8	33.1	33.3	4.3	31.9	7.4
Cavalier	WWW	2.24	0.311	0.127	0.38	0.05	0.142	1.2	33.8	39.7	4.4	36.4	6.4
Joaquin	WPB	2.42	0.294	0.126	0.40	0.04	0.145	0.9	28.4	33.7	4.3	31.5	7.8
14AL	APB	2.36	0.283	0.116	0.46	0.05	0.152	0.8	36.2	33.1	4.4	33.5	10.8
46AL	APB	2.59	0.311	0.125	0.39	0.05	0.171	1.1	35.8	32.1	4.8	34.3	7.7
ARGBR5785	WWW	2.62	0.331	0.121	0.43	0.05	0.165	0.9	37.4	35.2	4.8	37.9	10.2
Avg.	---	2.47	0.302	0.120	0.41	0.05	0.153	1.0	34.1	34.5	4.5	34.3	8.4

Table 16. Grain plant nutrient concentration average from **Coolidge (WWW)**, 2011.

Entry	Source	N	P	Mg	K	Ca	S	B	Fe	Mn	Cu	Zn	Al
		%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm
<u>Durum</u>													
Crown	WWW	2.43	0.350	0.126	0.42	0.05	0.147	2.4	36.3	55.0	7.9	43.1	32.9
Duraking	WWW	2.74	0.306	0.109	0.40	0.04	0.148	1.3	25.3	38.2	6.5	42.8	12.5
Platinum	WWW	2.60	0.301	0.112	0.43	0.04	0.156	0.9	27.5	44.8	6.6	44.0	11.3
Q-Max	WWW	2.60	0.305	0.117	0.41	0.04	0.151	1.4	31.2	53.4	8.0	45.0	16.5
D00-627	APB	2.56	0.285	0.113	0.37	0.04	0.151	1.0	24.3	47.6	6.6	47.3	17.7
Kronos	APB	2.63	0.307	0.115	0.41	0.04	0.146	1.1	24.1	47.8	7.6	39.7	9.8
Sky	APB	2.45	0.331	0.120	0.44	0.04	0.155	0.9	22.7	41.2	7.5	50.9	8.3
WestmoreHP	APB	2.88	0.292	0.105	0.33	0.03	0.156	0.8	25.6	44.9	6.5	40.3	8.1
Havasu	WPB	2.77	0.342	0.126	0.44	0.04	0.163	1.0	29.8	56.4	7.9	55.7	8.3
Orita	WPB	2.98	0.360	0.116	0.39	0.03	0.171	1.0	27.0	47.0	8.1	45.7	6.4
WPB-881	WPB	2.61	0.330	0.120	0.41	0.04	0.161	0.9	27.5	55.7	9.1	60.9	7.5
NDPRD3D13	WWW	2.65	0.313	0.114	0.39	0.04	0.150	1.2	25.4	40.9	7.8	47.1	7.2
UT07412	WWW	2.58	0.293	0.102	0.39	0.04	0.156	0.9	24.1	42.2	6.7	47.7	5.8
D0061	WWW	2.19	0.313	0.116	0.45	0.05	0.149	1.0	20.7	37.1	7.0	41.0	6.7
D8270-4	WWW	2.70	0.363	0.132	0.44	0.04	0.164	1.0	26.6	49.7	7.7	44.1	7.1
D1-7AL	APB	2.28	0.259	0.096	0.37	0.03	0.140	0.7	19.8	31.2	6.3	41.9	6.5
D1-2	APB	2.64	0.292	0.102	0.38	0.03	0.155	0.9	21.5	41.7	7.3	41.5	6.5
D1-35	APB	2.46	0.328	0.105	0.47	0.04	0.143	0.8	20.1	41.1	7.2	42.0	8.6
Avg.	---	2.60	0.315	0.114	0.41	0.04	0.153	1.1	25.5	45.3	7.4	45.6	10.4
<u>Wheat</u>													
YecoraRojo	UC	3.16	0.419	0.144	0.41	0.03	0.189	1.0	39.7	68.9	7.3	66.4	7.4
Cavalier	WWW	2.49	0.320	0.126	0.38	0.04	0.157	1.1	26.5	52.9	6.5	51.7	7.6
Joaquin	WPB	3.07	0.343	0.132	0.35	0.03	0.168	0.9	30.7	57.4	6.9	45.5	8.5
14AL	APB	2.98	0.305	0.117	0.42	0.04	0.136	0.9	24.5	46.6	6.0	41.2	7.0
46AL	APB	2.14	0.296	0.122	0.36	0.04	0.169	1.0	23.7	44.8	7.3	50.8	6.7
ARGBR5785	WWW	2.69	0.330	0.118	0.34	0.03	0.162	0.9	27.1	51.7	6.3	45.6	6.8
Avg.	---	2.76	0.336	0.127	0.38	0.04	0.164	1.0	28.7	53.7	6.7	50.2	7.3

Table 17. Grain plant nutrient concentration averaged from **Arizona City (APB), Yuma (APB), Yuma normal planting time (WPB), Yuma late planting (WPB), and Coolidge (WWW), 2011.**

Entry	Source	N	P	Mg	K	Ca	S	B	Fe	Mn	Cu	Zn	Al
		%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm
<u>Durum</u>													
Crown	WWW	2.53	0.331	0.116	0.48	0.05	0.149	1.2	31.4	39.5	6.4	39.3	11.3
Duraking	WWW	2.48	0.313	0.105	0.46	0.05	0.140	0.9	25.7	27.7	5.2	36.4	7.6
Platinum	WWW	2.46	0.323	0.106	0.51	0.04	0.143	0.8	27.7	36.1	5.5	38.9	8.2
Q-Max	WWW	2.36	0.317	0.113	0.47	0.04	0.142	0.9	29.7	40.3	6.3	38.9	8.8
D00-627	APB	2.48	0.331	0.115	0.44	0.05	0.147	0.8	26.8	40.2	5.2	42.4	9.6
Kronos	APB	2.49	0.322	0.111	0.48	0.05	0.149	0.8	26.7	35.2	6.2	38.7	7.7
Sky	APB	2.45	0.342	0.113	0.49	0.05	0.149	0.8	25.2	33.2	5.8	44.6	7.3
WestmoreHP	APB	2.71	0.320	0.108	0.42	0.05	0.156	0.9	32.4	34.7	5.2	37.2	16.4
Havasu	WPB	2.59	0.344	0.116	0.46	0.05	0.152	0.8	28.7	40.5	5.8	42.4	9.0
Orita	WPB	2.76	0.349	0.114	0.47	0.04	0.161	0.9	29.0	37.1	6.3	41.6	7.0
WPB-881	WPB	2.68	0.353	0.116	0.45	0.04	0.161	0.8	32.1	43.5	6.8	50.9	7.4
NDPRD3D13	WWW	2.41	0.309	0.107	0.44	0.05	0.145	1.1	27.1	32.2	6.1	37.3	7.2
UT07412	WWW	2.56	0.332	0.107	0.46	0.05	0.146	0.8	28.6	35.2	5.6	40.7	6.7
D0061	WWW	2.36	0.333	0.112	0.48	0.05	0.154	0.9	25.7	32.2	5.9	37.0	6.8
D8270-4	WWW	2.44	0.351	0.122	0.49	0.05	0.154	0.9	30.0	37.7	6.1	39.8	6.9
D1-7AL	APB	2.23	0.283	0.097	0.42	0.04	0.131	0.7	24.9	27.5	4.9	34.1	7.4
D1-2	APB	2.61	0.347	0.113	0.47	0.04	0.160	0.8	29.1	37.0	6.1	41.2	8.0
D1-35	APB	2.61	0.339	0.102	0.52	0.04	0.146	0.8	25.4	36.2	5.7	38.9	7.7
Avg.	---	2.51	0.330	0.111	0.47	0.05	0.149	0.9	28.1	35.9	5.8	40.0	8.4
<u>Wheat</u>													
YecoraRojo	UC	2.68	0.359	0.124	0.43	0.04	0.157	1.0	33.3	48.5	5.3	43.2	9.2
Cavalier	WWW	2.41	0.334	0.126	0.40	0.05	0.149	1.1	32.0	47.4	5.3	42.7	8.5
Joaquin	WPB	2.64	0.336	0.134	0.40	0.04	0.151	0.9	29.4	47.1	5.2	38.5	7.7
14AL	APB	2.49	0.310	0.121	0.46	0.04	0.147	0.9	32.2	43.0	5.0	36.7	9.4
46AL	APB	2.40	0.321	0.127	0.41	0.05	0.163	1.1	30.8	40.3	5.5	39.6	6.8
ARGBR5785	WWW	2.63	0.342	0.124	0.43	0.05	0.162	1.0	32.9	44.8	5.7	40.8	7.1
Avg.	---	2.54	0.334	0.126	0.42	0.04	0.155	1.0	31.8	45.2	5.3	40.3	8.1